COURSE GUIDE

B.A IN GRAPHIC DESIGN

GRD 126

COMPUTER GENERATED GRAPHIC DESIGN I

UNIVERSITY OF EDUCATION, WINNEBA
DEPARTMENT OF GRAPHIC DESIGN

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Acknowledgements

The facilitating agent of the course GRD 126 Computer Generated Graphic Design I wishes to thank the following lecturers for their contribution to this COURSE GUIDE:

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About this Course Guide

This introductory course in Computer Generated Graphics has been designed to expose students to basic activities in digital design and to introduce students to other computer graphics areas and uses.

The course would enable students to differentiate between *vector*, *raster*, *web* and *presentation* software as well as their respective uses. Students will learn ways of generating their own digital creative content for projects assigned.

How this Course Guide is structured

The course guide overview

The course overview gives you a general introduction to the course. Information contained in the course overview will help you determine:

- If the course is suitable for you.
- What you will already need to know.
- What you can expect from the course.
- How much time you will need to invest to complete the course.

The overview also provides guidance on:

- Study skills.
- Where to get help.
- Course assignments and assessments.
- Activity icons.
- Units.

We strongly recommend that you read the overview *carefully* before starting your study.

The course content

The course is broken down into lessons. Each lesson comprises:

- An introduction to the lesson content.
- Lesson objectives or outcomes.
- New terminology.
- Core content of the unit with a variety of learning activities.

- A unit summary.
- Assignments and/or assessments, as applicable.

The following is a generalized scheme, and not necessarily in the order given. Topics include, but are not limited to:

After completing [Add course title here] we would appreciate it if you would take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

- What is Computer Generated Graphic Design
- A Brief Overview of Graphic Design Software (Corel Draw, Illustrator, Photoshop, Painter, Dreamweaver, Flash and InDesign)
- Introduction to Corel Draw: Identification and uses of tools
- Working with texts, layout and special effects
- Computer graphic terminology- e.g., raster and vector images
- Identification and uses of input and output devices (scanners, cameras, printers, web and desktop)
- Working with Objects Linking and Embedding (OLE)
- File type, format, compatibility, size, and resolution
- Online projects: Visit to digital art museums online. The following and many other sites would be visited:

1. http://www.walkerart.org/archive/7/B1739D260AB12D076164.htm
2. http://www.diacenter.org/simmons/intro.html
3. http://moca.virtual.museum/
4. http://www.theartgallery.com.au/RaymondUhlig/
5. http://gallery.sjsu.edu/

Course Requirements

- A computer
- A (not less than) 250MB capacity flash drive.
- Functional Email account

Recommended Readings

Cotton, Bob & Oliver, R (1993). *Understanding Hypermedia*. London: Phaidon Press Ltd.

Lathrop, Olin (1997). *The Way Computer Graphics Works*. Canada: John Wiley & Sons Inc

deGraft-Yankson, P (2006). A Basic Handbook on ICT for Visual Art. Accra: Black Mask Ltd

Wilson, Stephen (1995). *Using Computers to Create Art*. San Francisco: Prentice Hall

Wislon, Stephen (2002). *Information Arts: Intersection of Arts, Science and Technology*. San Francisco: MIT Press.

Web Resources

http://www.adobe.com/education/webtech/CS2/unit_graphics1/gb_res_bitdepth_id.htm

Resources

For those interested in learning more on this subject, we provide you with a list of additional resources at the end of this Course Guide. These may be books, articles or web sites.

Your comments

After completing course, we would appreciate it if you would take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

- Course content and structure.
- Course reading materials and resources.
- Course assignments.
- Course assessments.
- Course duration.
- Course support (assigned tutors, technical help, etc.)

Your constructive feedback will help us to improve and enhance this course.

Course overview

Welcome to GRD 126: COMPUTER GENERATED GRAPHIC DESIGN I

This introductory course in Computer Generated Graphics has been designed to expose students to basic activities in digital design and to introduce students to other computer graphics areas and uses.

Course Objectives

Upon completion of this course and within the limitations of an introductory course, students will be able to:

Outcomes

- Differentiate between several design software programs.
- Assess which program should be used to produce projects demonstrating both marketable skills and personal artistic vision
- Recognize and use the appropriate software for creative expressions in Graphic Design.

Timeframe

How long?

Fourteen Weeks

Lesson 1 – What is computer Generated Graphic Design

Upon completion of this lesson you will be able to:

Outcomes

- Explain the term Computer Generated Graphic Design
- Differentiate between graphic design software.
- Distinguish between Vector based and pixel (bitmap) based images

Terminology

TERMINLOGIES	EXPLANATION
Pixel:	One of the small units that make up an image on a computer or television screen.
Vector Image	A computer image that uses mathematical descriptions of paths and fills to define the graphic
Bitmap	A representation, consisting of rows and columns of dots, of a graphics image in computer memory.

What is Computer Generated Art

Computer generated art refers to a method of producing art by a programmed computer. Also known as digital art, it can be purely computer-generated or taken from another source, such as a scanned photograph or image drawn using vector graphics software, using either a mouse or graphics tablet.

The term dates to the mid 1960s. Because of the wide range of variations however, computer art has no consistent style nor can traditional criteria be fully applied to its production. Computer generated art, or simply computer Art is being regarded by some people as inferior or not legitimate art because it is not generated from human creativity. To others however, it is a fascinating experience because of its bringing together of innovative elements of the sciences and humanities. In spite of all the misunderstandings however, computer art seem to be catching on very well in Ghana and its results are often regarded as accurate, precise, neat, attractive and more creative.

There are two main paradigms in computer generated art. The simplest is Two Dimensional (2D) computer graphics and directly maps how to draw an image on a piece of paper with a pencil. In this case, however, the image is on the computer screen and the drawing instrument might be a tablet stylus or a mouse, but the marks it makes will seem to be from a pencil or pen or paintbrush.

The second kind is Three Dimensional (3D) computer graphics, 3D graphics are created via the process of designing complex imagery from geometric shapes, polygons or nurbs to create realistic three dimensional shapes, objects and scenes for use in various media such as film, television, print and special visual effects .

In this lesson, Computer graphics would be discussed within the context of the first description of computer graphics. Computer Generated Graphic Design therefore refers to the process of creating graphic design works with the computer (and appropriate peripherals) as a tool.

In Computer generated Graphic design, the computer merely offers itself as a tool which can be used to render creative and aesthetically compelling graphic design works in many forms and in many ways. It means that designers must, first and foremost establish themselves with the basic working skills in which all forms of art are grounded (colour, composition, form, line, scale and perspective, etc). These working assets are tightly linked to the creative potential one brings to the computer. When combined with the computer, exciting and powerful methods of representing artistic goals can be harnessed, and wonderful things can be achieved.

It must be noted that the computer is not a cure-all for poor traditional grounding in the artistic process. It really is nothing more than alternative forms of paper, palettes, brushes and pens. The key is in technique, finesse, and ideation. What you do with these magic tools can be dull or devastating, glory or garbage depending on your level of understanding in artistic processes.

Vector Graphics

Vector based drawings are defined mathematically as a series of points joined by lines. Graphical elements in a vector file are called objects. Each object is a self-contained entity, with properties such as colour, shape, outline, size, and position on the screen included in its definition.

Because each object is a self-contained entity, it is also possible to move and change its properties freely while maintaining its original clarity and crispness without affecting other objects in the drawing. These characteristics make vector-based applications ideal for illustrations, in which the design process often requires individual objects to be created and manipulated. Vector-based drawings are resolution independent. This means that they appear at the maximum resolution of the output device, such as printer or monitor. As a result, the image quality of a drawing is a higher quality resolution.

Additional attributes of vector-based images include:

1. Vector-based images are usually created and edited in "draw" or "illustrate" programs such as Adobe Illustrator.
2. Vector-based images have smooth edges.
3. Vector-based images create curves or shapes.
4. Vector-based images are good for precise illustrations, but are not as good for photorealistic images.
5. Vector-based images are easily scalable, due to their use of mathematic formulas.

Bitmap (Pixel based) Graphics

In bitmap (also known as raster), images are stored as collections of pixels (dots) rather than as discrete lines, curves, and other such shapes. Unlike Corel Draw, the Adobe Photoshop, treats a drawing as a group of dots and is particularly appropriate for freehand drawing. It also provides tools for images that require lines, curves, and geometric shapes. Unlike Corel Draw, this programme does not treat any shape as an entity that can be moved or modified as a discrete object without losing its identity. For fine details, Adobe Photoshop has a facility that enables pixel-by-pixel modification of a paint pattern or a small segment of a drawing.

Key Points about Bitmap Images:

- pixels in a grid
- resolution dependent
- resizing reduces quality
- easily converted
- restricted to rectangle
- minimal support for transparency

Lesson summary

Summary

Computer graphics fall within two broad categories. The first one describes the process of using the tools provided by drawing software to produce any form of drawing that can be viewed on the computer screen and subsequently printed out via a printer.

The next category describes the process of generating complex and realistic three dimensional images.

Computer Generated Graphic design identifies with the first category where graphic design products can be created with the computer as a tool.

An image generated on the computer can be a vector or a bitmap.

Assignment

Assignment

Using your own words, write short notes on the following

a. A bitmap image

b. A vector image

c. Computer graphics